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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,639	08/16/2006	Toshio Isozaki	294568US0PCT	2292

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EXAMINER

LACLAIR, DARCY D

ART UNIT	PAPER NUMBER
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1796

NOTIFICATION DATE	DELIVERY MODE
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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/589,639	Applicant(s) ISOZAKI ET AL.	
	Examiner Darcy D. LaClair	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,7,8 and 11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,7,8 and 11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. All outstanding rejections, except for those maintained below are withdrawn in light of the amendment filed on **11/10/2009**.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The new grounds of rejection set forth below are necessitated by applicant's amendment filed on **11/10/2009**. In particular, independent **Claim 1** has been amended to recite (A-1) having an average molecular weight of 15,000 to 20,000, and 5 to 30 mol% of hydroxybiphenyl, a ratio of A:B of 60:40 to 90:10, to limit the species in now cancelled claim 2 to AS or MS resin which is not rubber modified, to limit the content and particle size of talc, to limit the content of core-shell elastomer, and to limit the content, molecular weight, and type of polytetrafluoroethylene. This limitation was not present in the claims at the time of the preceding Office Action. Thus, the following action is properly made **FINAL**.

Claim Rejections - 35 USC § 112

2. **Claim 1** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Specifically, applicant has recited a mass ratio of component (A) to component (B) of 60:40 to 90:10. While 50:50 to 95:5 was previously claimed, and discussed in the specification, there does not appear to be support for the narrowed range in the previous claims or the specification as filed. Additionally, the examples in table show A at 80 or 85 and B at 15 or 20, and therefore do not support these end points. It is noted that should applicant look to the Table for support in future amendments, the amended claim must be commensurate in scope with the compositional constituents provided by the table. For example the molecular weight of component A, shown in the table is 17,500 for each A species employed in the examples, and the B species are limited to ABS and AS.

Claim Rejections - 35 USC § 103

3. **Claims 1, 3, 7-8 and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Laughner et al. (US 5,369,154)** in view of **Laughner et al. (US 4,786,686)**, **Meyer et al. (US 2004/0030090)**, **Paul et al. (US 4,569,970)** and **Nodera et al. (US 6,001,929)** with **evidence** from **Wypych (Talc, 2001)**.

The rejection is set forth in **paragraphs 2 and 3** of the office action mailed **8/10/2009**, and is incorporated here by reference.

With respect to the amendments to Claim 1, Laughner '154 teaches an aromatic polycarbonate, (see col 4line 37-45) and shows an illustrative embodiment not intended to restrict the scope of the invention which is Calibre 300-10 polycarbonate, having a molecular weight of about 9,500. Laughner '686, uses Calibre 300, having a

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molecular weight of 22,000 in a similar composition. (See col 6 line 17-18) This defines a general range in which Laughner was working. Meyer teaches polycarbonates with special terminal groups, and processes for producing such resins. (See abstract) These resins are composed of phenolic compounds including diphenols such as dihydroxybiphenyls, (see par [0078]) and have molecular weight between 5,000 and 200,000, but most preferably between 15,000 and 40,000. (See par [0092]) With respect to the content of dihydroxybiphenyl, Meyer exemplifies a co-polycarbonate which contains 0.14 mole of bisphenol A, 0.06 mole of dihydroxybiphenyl, 0.223 mole of diphenyl carbonate, 0.0028 mole of additional compounds. (See Example 11, par [0192]-[0193]) This is a total of 0.4258 moles and 0.369 mols of biphenyl materials (bisphenol, dihydroxybiphenyl, and diphenyl carbonate) with 0.06 moles of dihydroxybiphenyl; Meyer's compound contains 16.3 mol% of dihydroxybiphenyl per biphenyl materials, which falls within applicant's claimed range. Meyer teaches that these polycarbonates do not exhibit high zero sheer viscosity or undergo degradation under thermal stress such as extrusion or injection molding (see par [0018]) and can be mixed with other thermoplastics, and processed into molded articles or extrudates. (See par [0117]) They are particularly applicable for safety panels for vehicles and aircraft, production of fibres and threads, production of molded articles and precision injection molded parts, production of optical instrument parts, mobile telephone housings, applications in the automobile sector. (See par [0119]-[0148]) Given that the polycarbonates of Meyer fall within the greater range taught by Laughner, and display benefits such as resistance to degradation and good viscosity, it would be obvious to

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one of ordinary skill in the art to follow Meyer's teachings with regard to the molecular weights and dihydroxybiphenyl content of these polycarbonates.

With respect to component (B), Laughner 154 teaches a styrene/acrylonitrile copolymer and several other olefinic polymers which can contain a vinylic group (styrene) in combination with the polycarbonate. These include both styrene in combination with rubbers and without, In combination with the aromatic polycarbonate resin. Laughner directs the reader to Paul for further discussion of the formation of carbonate block copolymers. (See col 5 line 3) Paul teaches compositions containing polycarbonate blocks from 20-80 parts, and 5-60 parts of a rubber-free thermoplastic polymer of vinyl monomers. (See col 1 line 53-67) This is a polycarbonate: non-rubber styrene resin ratio of 60:45 to 90:6.64, *inter alia*. The rubber-free polymers are composed of styrene, acrylonitrile, methacrylonitrile and methyl methacrylate, *inter alia*. (See col 4 line 60-68) They are preferably copolymers of styrene and acrylonitrile. (See col 5 line 12-25) These are resin like thermoplastics; it would be obvious to one of ordinary skill in the art to use both of the impact modifiers of Paul in the composition of Laughner, given the direction of Laughner to this reference.

With respect to the content and size of the talc, Laughner 154 teaches that fillers such as talc, *inter alia*, (col 16 line 63-65), constitute up to 40% of the composition. (col 17 line 1-4) Wypych provides standard data on fillers; the expected size of talc particles is from 1.4 to 19 μm . (See Wypych, p. 150) Therefore it is expected that given the available products, one of ordinary skill in the art, following Laughner 154's teachings would use talc having a particle size from 1.4 to 19 μm

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With respect to the core-shell elastomer, Laughner 154 also a core-shell graft polymer, (col 15-16) as an impact modifier in an amount up to 25%, preferably from 1 to 15 weight percent, (col 2 line 50-57) and exemplifies using 60 parts of the core-shell elastomer per 1840 parts of the polycarbonate and styrene portions, (See col 19, Table V, Example 17) or 3.2 parts per 100 of the core shell elastomer. This exemplified content falls within applicant's required range.

With respect to the PTFE fibril forming component, Laughner '154 teaches that additives can be included improve the ignition resistance of the composition (See col 16 line 64), up to but not exceeding 5% by weight of the composition (See col 17 line 2). Laughner '686 teaches the incorporation of a fibril forming polytetrafluoroethylene. (See col 4, line 12) in a content of 0.1 to 5 percent by weight (see col 5 line 59), and exemplifies a content of 0.2 and 0.3 parts by weight. (See col 6, col 7, Table I) Laughner '686 teaches that the PTFE is a fibril forming fluorine. Laughner does not specifically disclose that this fibril forming PTFE is classified as Type 3, or the molecular weight thereof. Nodera discloses a polycarbonate resin composition and teaches that a PTFE fibril is incorporated into the polycarbonate to impart melt dripping preventive effect and high flame retardancy. This fibril is a Type 3 PTFE, and has a molecular weight most preferably from 500,000 to 10,000,000. (See abstract, col 5 line 16-24) It would be obvious to one of ordinary skill in the art to employ this PTFE fibril, which imparts good melt dripping resistance and excellent flame retardancy as the ignition resistance PTFE fibril of Laughner.

With respect amended Claim 11, Laughner 154 teaches samples prepared by injection molding. (col 17 line 29). Although Laughner '154 does not explicitly teach a heat resistance of 110°C or more, the samples are dried in an air oven at 115°C for six hours. (See col 17 line 25-28) This suggests that the composition of Laughner, and the composition of Laughner in view of Laughner, Meyer, Paul and Nodera, has a heat resistance of at least 115°C, otherwise this treatment would cause degradation of the composition. Melt mixing is performed at 270°C in a 30 mm twin screw extruder performed under vacuum. (See col 17 line 19-22) Although the spiral flow length is not explicitly recited, it is the examiner's position that in order to meet the requirements of the melt mixing protocol, and in view of the similarities as the composition set forth above, with respect to amended Claim 1 to the claimed composition of applicant, it would be expected that the composition and the injection molded article made therefrom would have a spiral flow length of 35 mm or greater under the recited conditions.

Response to Arguments

4. Applicant's arguments filed **11/10/2009** have been fully considered. Specifically, applicant argues

(A) Claims 1 and 11 have been amended.

With respect to component A-1, the office looks to Laughner '154, however Laughner '154 discloses a polycarbonate having a molecular weight of about 9,500, which does not disclose or suggest the claimed polycarbonate having a molecular weight of 15,000 to 20,000. Meyer discloses a co-polycarbonate containing 14.1 mol%

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of dihydroxybiphenyl, which equates to 30 mol% with respect to the total amount of divalent phenol as a raw material in the formation of the aromatic polycarbonate; while Meyer may disclose 30%, there would be no motive from Meyer as a whole to look below 30 mol%. When the prior art discloses the outer limits of the range, and the optimum resides within that range, the determination of optimum values may not be obvious. (In re Sebek) Thus, without any motivation to consider mol% below 30 mol%, applicant's range of 5-30 mol % is not rendered obvious.

With respect to component (B), the office again looks to Laughner '154, however laughner discloses 5-95% polycarbonate and up to about 50% of rubber modified styrene/acrylonitrile copolymer, however the amended Claim recites a non-rubber modified styrene resin; Laughner '154 does not disclose the claimed AS or MS resin.

With regard to component (C), Laughner '154 is silent on particle size; With regard to component (D); Laughner discloses impact modifiers in an amount up to 25%, preferably less than 5%; the claimed invention recites the inclusion of a core-shell elastomer in amounts 3 to 10 parts by mass. One would have no motivation to look to amounts above 5% due to Laughner teaching that 1-15% is preferable and less than 5% is even more preferable;

Lastly, with regard to component (G), Laughner '686 discloses a flame retardant, impact resistant carbonate polymer containing 0.01-10 wt% of a fluorine containing polymer of the fibril forming type, however Laughner is silent with respect to the molecular weight and their classification according to ASTM standard.

In view of the forgoing, applicants submit that the combination of the cited references does not disclose or suggest the invention, as the individual deficiencies are discussed above.

5. **With respect to argument (A)**, applicant's arguments have been considered and the rejection has been withdrawn ***in light of applicant's amendment***. Support for the amendment except where discussed above, in **paragraph 2**, is acknowledged. However, note the new rejection set forth above incorporating Nodera and evidence from Wypych into the references previously applied. Applicant is directed to the discussion above, in **paragraph 3**, with respect to how the cited references, applied in the previous office action, meet the amended limitations. With respect to applicant's arguments, it is noted that while the combination of references above does not exemplify specific components or ranges, this does not negate a finding of obviousness under 35 USC 103 since a preferred embodiment such as an example is not controlling. Rather, all disclosures "including unpreferred embodiments" must be considered. *In re Lamberti* 192 USPQ 278, 280 (CCPA 1976) citing *In re Mills* 176 USPQ 196 (CCPA 1972). Therefore, it would have been obvious to one of ordinary skill in the art to utilize the claimed ranges and components given that the combination of prior art discussed above in paragraph 3 teaches each one.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darcy D. LaClair whose telephone number is (571)270-5462. The examiner can normally be reached on Monday-Friday 8:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571-272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MILTON I. CANO/
Supervisory Patent Examiner, Art Unit 1796

Darcy D. LaClair
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/DDL/